International System of Measurement, Units and Efficiency

Contents

1.1 The International System

The International System of Units, or SI (from the French *Système International*) is a coherent system introduced in 1960. It is the primary system of measurement used by most countries around the world.

A system is coherent if all of its units are either base units, or are derived from the base units (for example from the product or quotient of two base units).

The International System is made up of 7 base units:

Quantity	Symbol	Unit
Mass	M	Kilograms (kg)
Length	l	Metres (m)
Time	t	Seconds (s)
Electric Current	I	Amperes (A)
Absolute Temperature	K	Kelvin (K)
Luminous Intensity	I	Candela (cd)
Amount of Substance	n	Moles (mol)

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These units are based on physical quantities[1]:

Mass: the kilogram is the mass of a platinum-iridium cylinder kept at the International Bureau of Weights and Measures near Paris.

Length: the metre is the length of 1,650,763.73 wavelengths of the orange line in the spectrum of an internationally specified krypton discharge lamp

Time: the second is the interval of time in which the radiation corresponding to the transition of the caesium-133 atom cycles 9,192,631,770 times.

Electric Current: An Ampere is the current which would produce a force of 2×10^{-7} Newtons per metre of length if maintained in two straight parallel conductors of infinite length, negligible circular cross-section, and placed 1 metre apart in a vacuum,.

[1] Hughes Electrical and Electronic Technology, International System of Measurement (p.4)